ARIDYNE® 3500 air compressor

SERVICE MANUAL

SPECIFICATIONS:

Output: 42 lpm at 50 psig
Dew Point Depression: 5°F below room temp. at maximum flow
Power: 115 Volt - 60 Hz - 8.5 Amp
Cabinet Size: 27.9 cm (11") wide
38.4 (15 1/8") long
85.1 cm (33 1/2") high with castors

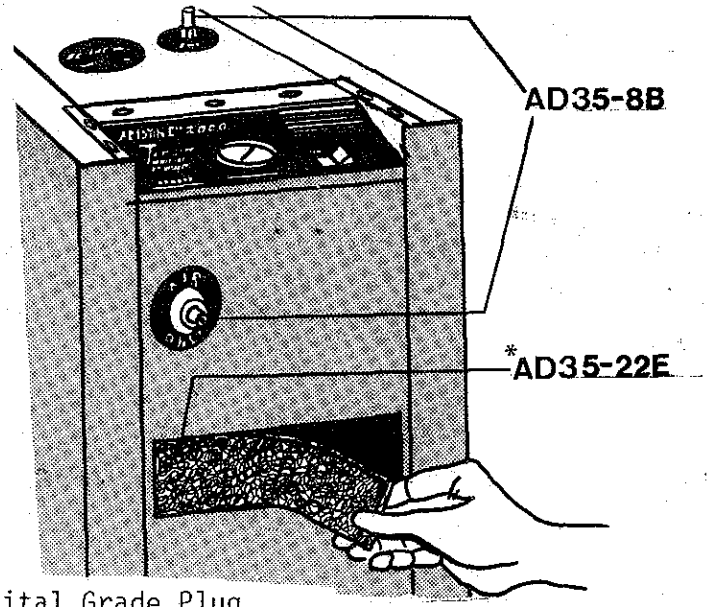

FIG. 1

Power Cord: #16/3 x 2.8 m (9'4") with Hospital Grade Plug
Weight: 40.7 kg (90 pounds)

Includes: Performance Gauge
Elapsed Time Indicator
2 DISS Air Outlets (with internal check valves)
Circuit Breaker (internal)
One-Year Warranty
U.L. Listed
4 Swivel Castors

*Included in the #AD35-22 Preventive Maintenance Kit

Revised Sept., 1982

PREVENTIVE MAINTENANCE

DAILY (See Fig. 1)
Cabinet Air Inlet Filter (#AD35-22E): The dust and lint of air entering the compressor is trapped by the air inlet filter in the front of the cabinet. Once a day, remove and wash the filter in warm, soapy water, or replace it.

QUARTERLY (See Fig. 3): Drain System "A" only

1. Remove rear panel.
2. Disconnect the high pressure hose (#AD35-19) at the swivel fitting and pull end up through shelf.
3. Disconnect the tubing from bottom of the water jar and unthread the jar. NOTE: When reinstalling the water jar, take care to place the O-Ring on the jar properly, and to rethread the jar properly.
4. Slide motor/fan shelf out enough to expose both air inlet filter assemblies (#AD35-17A). NOTE: It may be necessary to unplug certain wires from the junction box. Be certain to reinstall them in the proper numbered holes in the junction box. (See Wiring Diagram, page 11.)
5. To change the air pump felt inlet filters (Fig. 2, #AD35-17A):
   a. Unthread the jar from the lid.
   b. Remove center stud by pulling it straight out.
   c. To clean the felt filters, use compressed air or brush or wipe (do NOT wash them), or install new filters (#AD35-22A).
   d. To reassemble the air filter assembly, reverse above procedures.
6. To replace bronze filter (Fig. 2, #AD35-22B) in the water jar:
   a. Unthread black plastic retainer cap (#19), allowing bronze filter to drop down.
   b. Clean with warm soapy water, or replace the bronze element filter. At this time the water jar may also be washed out.
   c. Reassemble parts by reversing procedure above.

ARIDYNE 3500 AIR COMPRESSOR

Precautions To Prevent Shipment Damage Of Aridyne 3500 Air Compressor

Unpacking Instructions:

1. Remove rear panel by unthreading the six phillips head screws.
2. Loosen, but do not remove the six 5/16"-18 hex nuts securing the motor.
3. Swing the two brackets on the left down to release; they stay down for storage. The one bracket on the right swings up to release and down for storage.
4. Tighten all hex nuts. This is necessary to ensure that the nuts do not loosen due to the vibration of the motor. Tightening the hex nuts also aids in ensuring the reusability of the swing brackets for future shipping purposes.
5. Check to see that the drainage hose is positioned on foam in the water tray.
6. Examine for any obvious shipping damage.
7. Replace side panel.

PLEASE NOTE: To prepare your Aridyne 3500 for shipment reverse the above set of procedures.

CAUTION: It is essential that you secure the compressor motor before shipping your Aridyne 3500. Unfortunately, in the past customers have received considerable shipping damage to their air compressor by not properly securing the motor. So PLEASE SECURE YOUR MOTOR BEFORE SHIPMENT!

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Drain System "B" only (See Fig. 4)

1. Disconnect the nylon tubing from the elbow which is attached to the AD35-V06 pressure relief valve.
2. If necessary, loosen the clamp that holds the water jar to the top shelf in order to provide enough clearance to remove the jar.
3. Lift up on the base of the water jar and unthread the jar, AD35-30A, or AD35-30B.
4. Follow steps 2, 4, 5, and 6 described under Quarterly Preventive Maintenance.
5. When water jar is reassembled, tighten the clamp that holds the water jar base to the top shelf.

Drain System "C" only (See Fig. 5)

1. Loosen the clamp that holds the water jar to the top shelf.
2. Disconnect the high pressure hose at the swivel fitting, and pull end up through shelf.
3. Disconnect the nylon tubing from the elbow which is attached to the pressure relief valve (#AD35-5V06).
4. Unthread water jar and pressure relief valve simultaneously.
5. Follow steps 4, 5, and 6 described under Quarterly Preventive Maintenance.
6. When water jar is reassembled, tighten the clamp that holds the water jar base to the top shelf.

❖ YEARLY

1. Install Yearly Preventive Maintenance Kit (#AD35-22); it includes:
   2 each Pump Felt Air Inlet Filters (#AD35-22A)
   1 each Water Jar Bronze Filter Element (#AD35-22B)
   1 each Water Jar O-Ring #AD35-22C)
   6 each Cabinet Air Inlet Filters (#AD35-22E)
   1 each Diaphragm for Pressure Relief Valve (#AD35-FV06)
   1 each Diaphragm for Pressure Regulator (#AD35-GR06)

   Refer to QUARTERLY section for proper installation procedures. Drain System "A" only.

2. Clean or replace Pressure Valve (Fig. 3, #AD35-V06A):
   a. Note assembly of Pressure Valve in Fig. 3.
   b. Disassemble the valve and clean the black seat with a brush and warm soapy water; or replace entire valve assembly.

   NOTE: After cleaning or replacing valve, be sure to see step 3C of WATER PROBLEMS for proper adjustment of the valve to insure moisture-free compressor performance.

3. Pump Overhaul Kit (#AD35-26) should be installed if the elapsed time indicator shows more than 6,000 hours of operating time since the last time the pump has been serviced.

   SHELF AND PUMP ASSEMBLY REMOVAL AND PUMP OVERHAUL:
   a. Perform the first three steps of the QUARTERLY section.
   b. Slide shelf entirely out of the cabinet. Be careful not to drop the compressor motor.

      WARNING: If your unit has a fan with a metal blade, be extremely careful not to bend the blades, as this can severly affect the cooling and proper performance of the compressor.

YEARLY (Cont'd.)

c. Remove the motor wires from the junction box. See Wiring Diagram on page 11 for proper installation.
d. Lay the shelf down on its' side and spread the springs open at the four (4) motor eyebolts. Unhook the springs from the motor eyebolts to free the motor from the shelf.
e. Proceed with pump overhaul, using instructions included with pump overhaul kit. When installing new rings in the air pump, be sure the piston is exactly flush with the cylinder when the piston is at top dead center. Readjust the cylinder as necessary. If there are any questions or problems, please contact the Service Department (717) 569-2695.

NOTE: If there is any excessive damage to the pump, such as broken pistons, scored cylinders, etc., please contact the Service Department to make proper arrangements for factory repair. (717) 569-2695.

❖Performance Gauge (Control Panel)

If the needle "sticks", is slow to respond, or vibrates rapidly, remove the back panel and adjust the needle valve AD-35-9 (located above the water jar assembly in Fig. 3) slightly. Closing the needle valve will eliminate vibration; opening it will prevent sticking and slow response. Proper setting is important to prevent damage to the performance gauge, and to insure an accurate reading.

❖Overheating: Check for;

1. The fan is not operating.
2. The cabinet air inlet filter (Fig. 1, #AD35-22E) is clogged with lint and needs to be cleaned.
3. The unit is operating in a hot, unventilated room or closet.
4. The cabinet air inlet filter is blocked by curtains, bedding, a wall, etc.
5. Air compressor motor (Fig. 3, #AD35-27) is not being properly cooled due to restricted air circulation; louver (on the bottom of the air compressor cabinet) is crushed or bent closed.

❖High Pressure

Drain System "A"

1. The internal pressure regulator (Fig. 3, #AD35-5R06) may be set too high.
2. The black seat of pressure valve (Fig. 3, #AD35-5V06A) needs to be cleaned with warm, soapy water and a brush; or the entire valve may be replaced. Be sure to resynchronize the pressure regulator and pressure valve (Fig. 3, #AD35-5R06 and #AD35-5V06A). See WATER PROBLEMS, #3C for instructions.

Drain System "B"

1. The internal pressure regulator (Fig. 4, #AD35-5R06) may be set too high).
2. The diaphragms (Fig. 4, #AD35-22GR06 and #AD35-22FV06) inside the pressure regulator AD35-5R06 and pressure relief valve AD35-5V06 respectively, need to be cleaned or replaced, and the regulators need to be synchronized. See WATER PROBLEMS, #3D for instructions.

❖Low Pressure

If compressor motor (Fig. 3, #AD35-27) has stopped, resulting in low pressure, check the following:

1. The power cord may not be plugged into the wall receptacle.
2. The circuit breaker (Fig. 3, #AD35-7) located inside the unit directly behind the pressure regulator (#AD35-5R06) has popped up, exposing a red ring. Press to reset. If it pops up again, call the Service Department at Timeter, (717) 569-2695.
3. The thermal overload protector within the compressor motor has stopped the motor. This overload protector will automatically reset within 20-30 minutes; if the on/off main switch (control panel) is left on, the fan will cool the motor faster. Activation of the thermal overload protector is caused by:
   a. Overheating of the compressor motor by any of the causes listed in the section on OVERHEATING.
   b. The air compressor is drawing too much current because of a motor defect; this condition will quickly overheat the motor. Current usage should not exceed 8.5 ampere during normal compressor usage.
4. Hospital circuit fuse has blown.

IF COMPRESSOR MOTOR IS STILL RUNNING AND PRESSURE IS LOW, CHECK:

a. One or more of the outlets (Fig. 1, #AD35-8B) is leaking badly.
b. The water jar (Fig. 2, #AD35-30A or AD35-30B) is not threaded on properly.
c. The O-ring (Fig. 2, #AD35-22C) on top of the water jar is not on properly, or is missing.
d. An internal brass fitting or tubing fitting is leaking badly.
e. The compressor's pop-off valve (Fig. 3, #AD35-18) is defective.
f. The internal pressure regulator (Fig. 3, #AD35-5R06) is set too low.

IF PRESSURE GAUGE READS IN YELLOW WHILE USING 45 LPM OR LESS, CHECK:

a. Performance gauge needle valve needs to be adjusted. See TROUBLE SHOOTING, Performance gauge section.
b. Drain System "A" units only. Black seat of pressure valve (Fig. 3, #AD35-5V06A) needs to be cleaned with warm soapy water and a brush; or entire valve assembly may be replaced. Be sure to resynchronize valve after cleaning or replacing. See WATER PROBLEMS, #3C.
c. Drain Systems "B" and "C" units only. Pressure relief valve (Fig. 4, AD35-5V06) diaphragm needs to be cleaned or replaced. Be sure to resynchronize valve after cleaning or replacing the diaphragm. (See Water Problems 3d.)
d. If all the above LOW PRESSURE steps provide no solution, the pump is at fault. Install an air pump overhaul kit (#AD35-26). Installation instructions are included with each kit. See PREVENTIVE MAINTENANCE section.

❖ Water Problems - Causes for water coming out of the outlets (Fig. 1, #AD35-8B):

1. The flow capacity of the compressor pump is being exceeded. The performance gauge on the control panel should be indicating the RED danger area.
2. The compressor has overheated. The water removal system depends upon the cooling of the compressed air. See section on OVERHEATING.

Water Problems (Cont'd.)

3. The internal pressure regulator (Fig. 3, #AD35-5R06) is out of synchronization with:
   a. Drain system "A" pressure valve (Fig. 3, #AD35-5V06A)
   OR
   b. Drain system "B" and "C" pressure relief valve (Fig. 4, #AD35-5V06).

   TO RESYNCHRONIZE, DO THE FOLLOWING:
   a. Disconnect any equipment from the compressor outlets.
   b. Remove the cabinet near panel and turn on unit.
   c. Drain system "A" units only:
      1. Pull the red locking ring on the pressure regulator (Fig. 3, #AD35-5R06) toward the black adjustment knob (away from the brass body) and turn clockwise until it is completely closed.
      2. If the performance gauge does not read at the "P" of "PSI" in the GREEN area at a no-flow condition, loosen the lock nut on the pressure valve (#AD35-5V06A), and adjust the knurled cap until it does.

         CAUTION: DO NOT adjust needle past the "P" in the green area, or pump damage will result!!!

      3. Once the pressure valve is adjusted properly, lock it by retightening the lock nut against knurled cap.
      4. Now recheck the needle position. Readjust the valve as necessary.
      5. Attach a pressure gauge to any outlet of the compressor.
      6. Adjust the pressure regulator (#AD35-5R06) until the outlet pressure is approximately 55 psig at a no-flow condition. Allow a few seconds after each adjustment for the system to stabilize.
      7. Relock the red locking ring by pulling it back towards the brass body.
      8. At this point, the maximum flow and drying conditions are reached.

   d. Drain System "B" and "C" only:
      1. Pull the red locking ring on the Pressure Regulator (Fig. 4, #AD35-5R06) toward the black adjustment knob (away from the brass body), and turn clockwise until it is completely closed.
      2. If the performance guage does not read at the "P" of PSI in the GREEN area at a no-flow condition, push the locking ring on the pressure relief valve (Fig. 4, #AD35-5V06) toward the black adjustment knob (away from the brass body).
      3. Adjust the knob until the needle reads at the "P" of PSI in the GREEN area at a no-flow condition.

         CAUTION: DO NOT adjust the needle past the "P" in the green area or pump damage will result!!!

      4. Once the knob of the pressure relief valve is adjusted properly, lock it by pulling the locking ring back toward the brass body.
      5. Attach a pressure gauge to any outlet of the compressor.
      6. Adjust the pressure regulator (#AD35-5R06) until the outlet pressure is approximately 55 psig at a no-flow condition. Allow a few seconds after each adjustment for the system to stabilize.
      7. Relock the locking ring by pulling it back toward the brass body.
      8. At this point, the maximum flow and drying conditions are reached.

❖NOISE AND EXCESSIVE VIBRATION: Check the following:

1. The high pressure hose (braided metal) is not centered in the clearance hole where the hose passes through the motor/fan shelf. This will cause excessive vibration. Centering the hose in the hole can be accomplished by adjusting the fittings on the pump head until the hose passes through the hole without touching the shelf.
2. The motor is worn out (as can be noted by a loud clattering noise in the motor chamber). In this case, motor should be removed and inspected. See Yearly section, #3a through #3e, under PREVENTIVE MAINTENANCE for instruction.
3. Fan brackets are bent and fan blade is striking the shelf or brackets.
4. The pressure valve (Fig. 3, #AD35-5V06A) may make excessive noise if it is dirty or worn. Cleaning the valve should remedy this; however, if this problem persists, slightly enlarging the hole in the knurled cap with a drill may solve the noise problem. If a valve cannot be quieted, replacing it may be necessary.

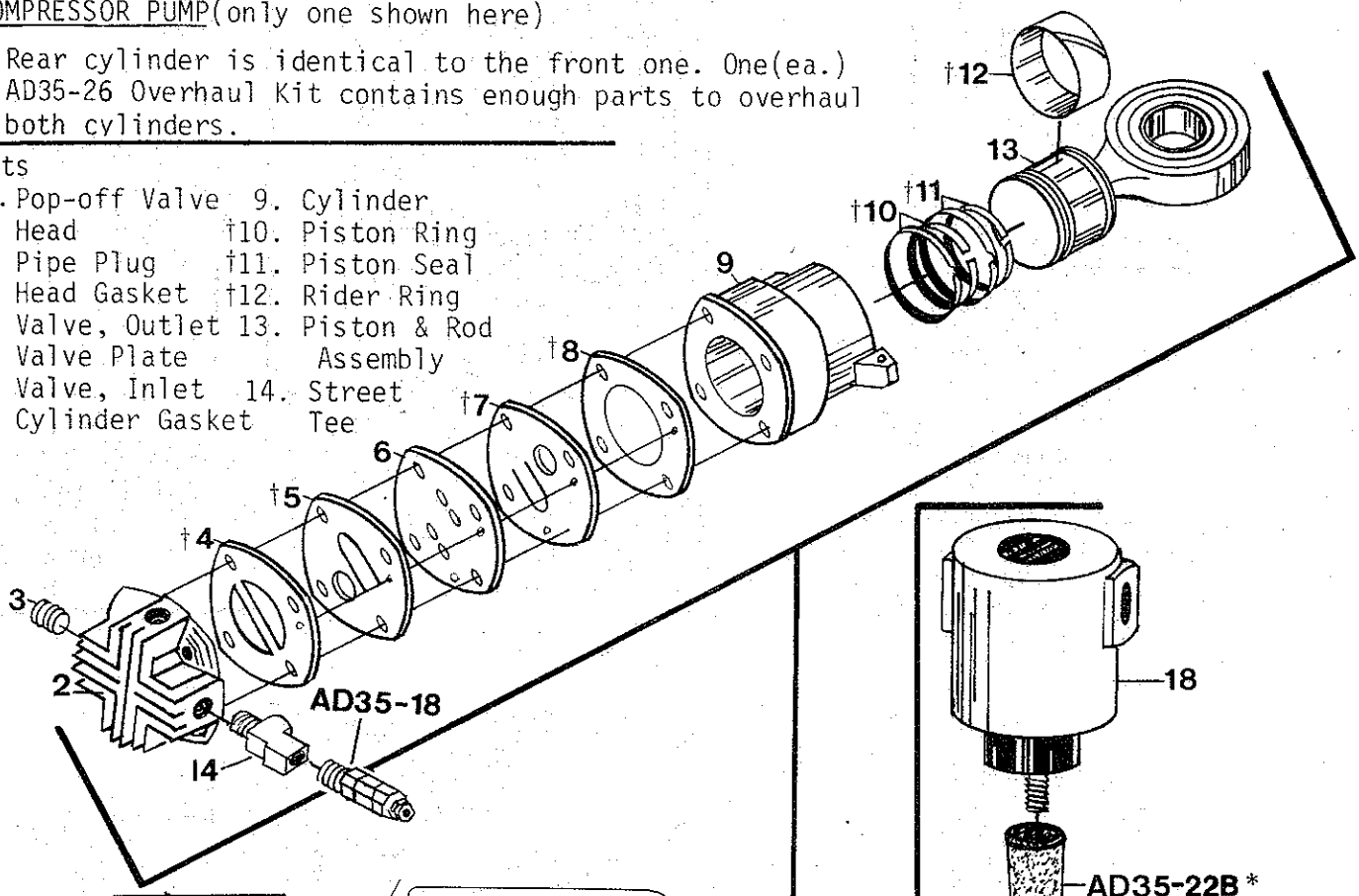
   NOTE: After cleaning or replacing the valve, be sure to see step 3c of WATER PROBLEMS for proper adjustment of the valve to insure moisture-free compressor performance.

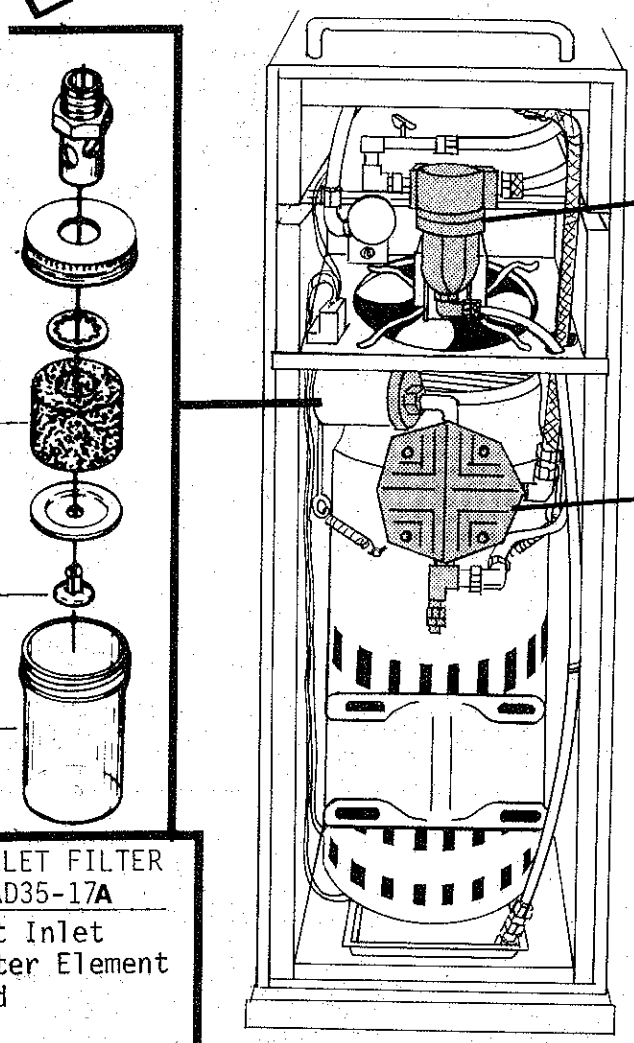
AIR COMPRESSOR PUMP(only one shown here)

Note: Rear cylinder is identical to the front one. One(ea.) AD35-26 Overhaul Kit contains enough parts to overhaul both cylinders.

Parts

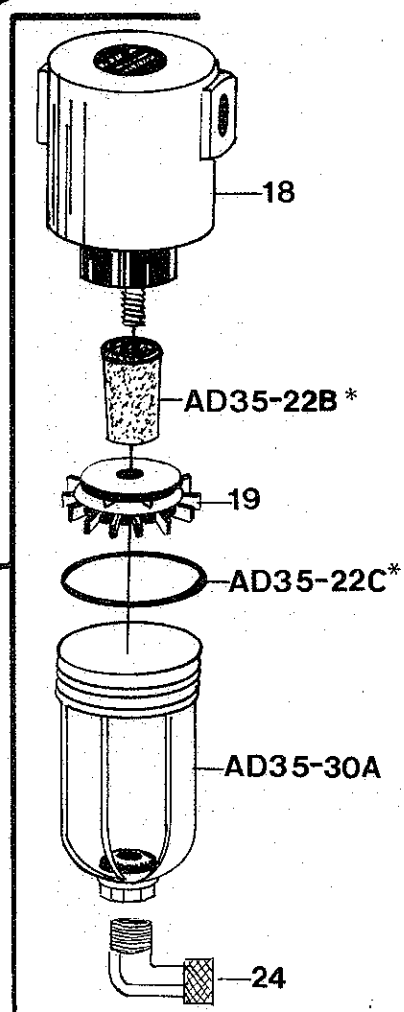
AD35-18. Pop-off Valve
2. Head
3. Pipe Plug
†4. Head Gasket
†5. Valve, Outlet
6. Valve Plate
†7. Valve, Inlet
†8. Cylinder Gasket
9. Cylinder
†10. Piston Ring
†11. Piston Seal
†12. Rider Ring
13. Piston & Rod Assembly
14. Street Tee





AIR PUMP INLET FILTER ASSEMBLY #AD35-17A

†*AD35-22A. Felt Inlet Filter Element
25. Stud
26. Jar



WATER JAR ASSEMBLY

Parts

18. Body
*AD35-22B. Bronze Filter Element
19. Retainer Cap
*AD35-22C. O-ring
AD35-30. Water Jar
24. Elbow

†Included in the #AD35-24 Pump Overhaul Kit.

*Included in the #AD35-22 Preventive Maintenance Kit

FIG. 2-

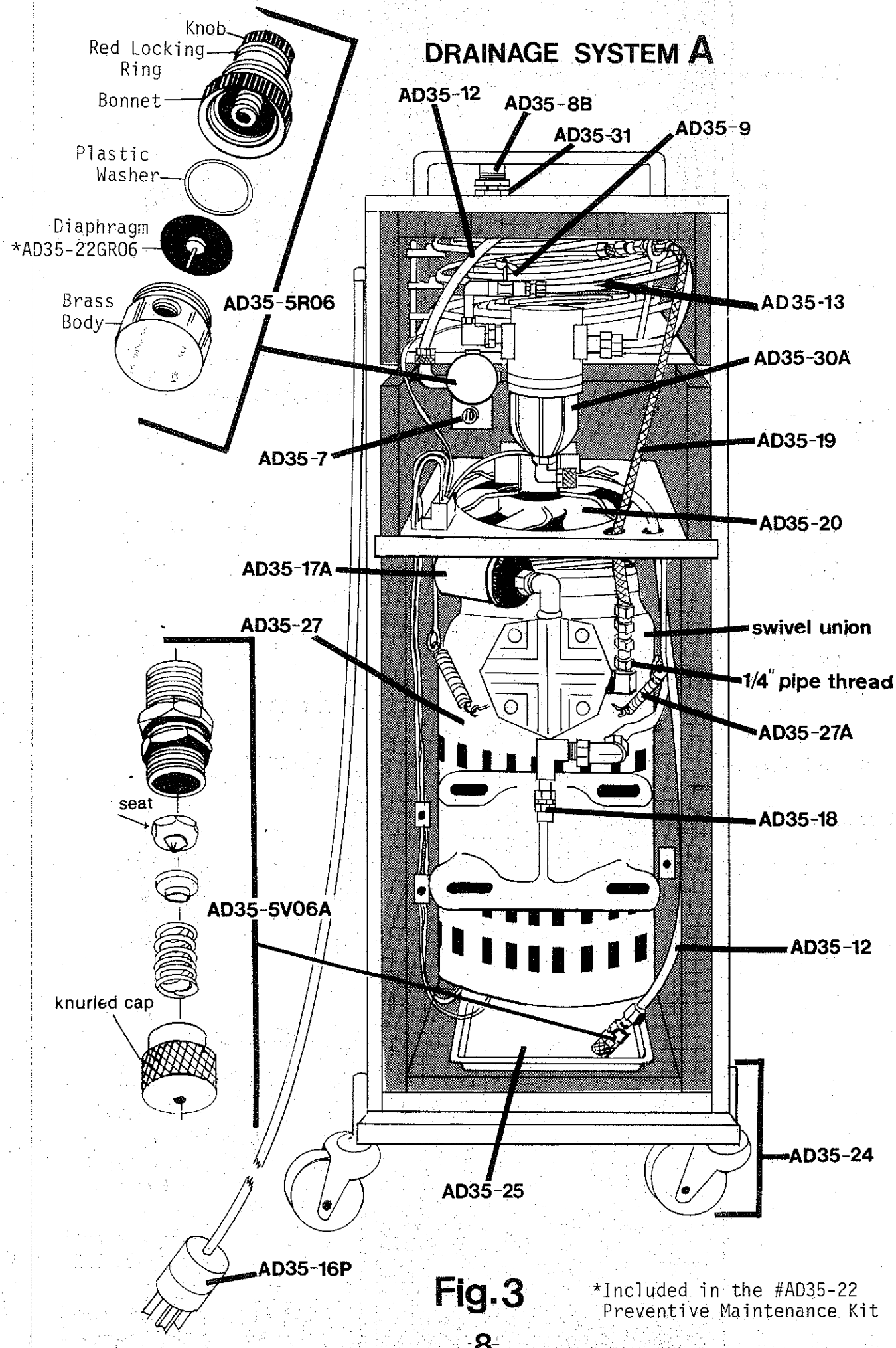


Fig.3

*Included in the #AD35-22 Preventive Maintenance Kit

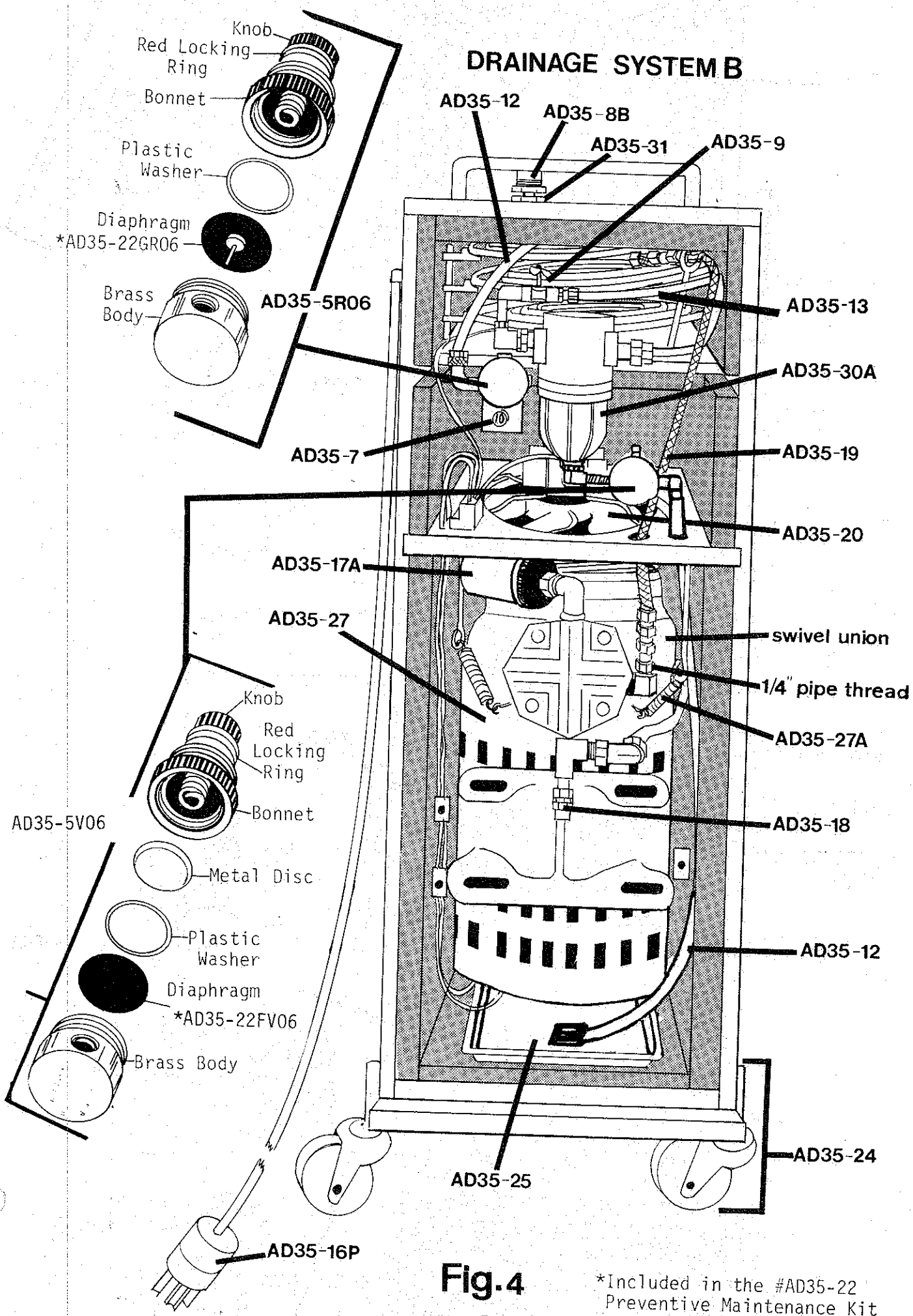


Fig.4

*Included in the #AD35-22 Preventive Maintenance Kit

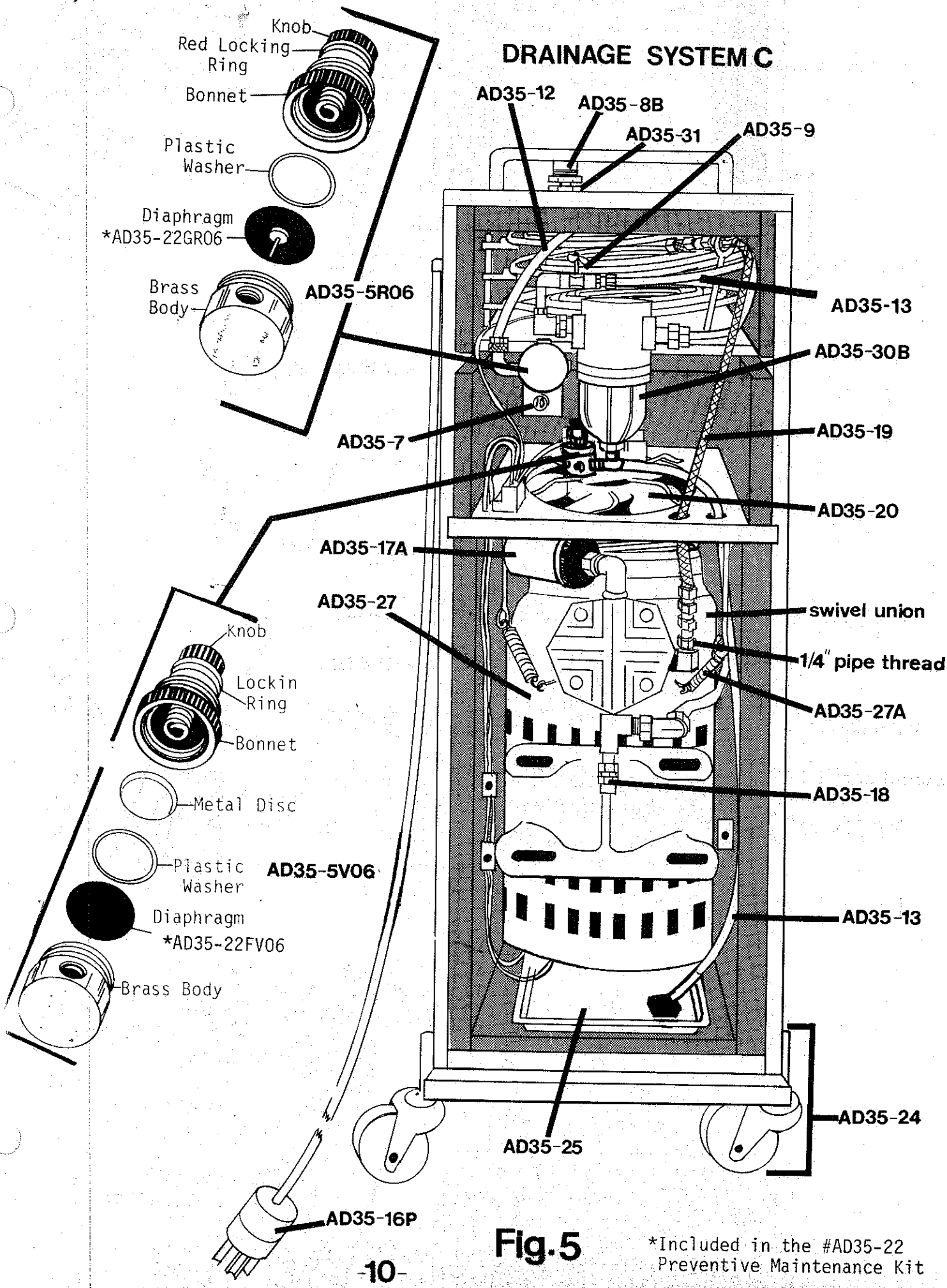


Fig.5

*Included in the #AD35-22 Preventive Maintenance Kit

WIRING DIAGRAM for ARIDYNE® 3500